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EXAMINER	
MOORE, IAN N	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/847,076	DOOLEY, DAVID L.	
	Examiner	Art Unit	
	Ian N. Moore	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7,10-12 and 17* is/are rejected.

7)☒ Claim(s) *3-6,8,9,13-16,18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 8, 11 and 18 are objected to because of the following informalities:

Claim 8 recites "**a** first cell" in line 9 and "**a** first cell" in line 14. It is unclear whether "a first cell" in line 14 is the same cell as recited in line 9. (***NOTE- this is the same objection raised in the previous office action***).

Claim 18 is also objected for the same reason as stated above in claim 8. (***NOTE- this is the same objection raised in the previous office action***).

Claim 11 recites, "store **the cell the memory**" in line 12. It is suggest inserting proper preposition between "the cell" and "the memory".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1,2,7,10,11,12, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz (US006529478B1) in view of Epps (US006721316B1).

Regarding Claims 1 and 11, Schwartz discloses an apparatus for receiving, storing and then forwarding data in a plurality of incoming packets (see FIG. 2, Switching node 11(n); see col. 5, line 1-55), the apparatus comprising:

a memory (see FIG. 3, 6; packet memory 31 and 51 of port module and storing means of interport packet switch 22; see col. 3, line 25-40; see col. 6, line 53 to col. 7, line 4);

a. first means (see FIG. 2-3, Input port module 20(N)) for receiving each incoming packet and for generating a cell sequence corresponding to the incoming packet, wherein each cell of the cell sequence packet contains a separate portion of the data included in the incoming packet (or a uniform size) (see col. 5, line 66 to col. 6, line 10; see col. 10, line 41-65; Input port module divides incoming packet into a series/sequence of equal/uniform segments/cells (i.e. packet meta-data));

b. second means (see FIG. 2, 5; packet meta-data processor 23) for making a determination with respect to at least one cell of each generated cell sequence to whether to discard the cell or to store the cell the memory (see col. 7, line 35-65; col. 8, line 14-35; see col. 11, line 65-67; processor determines whether to discard/drop the segments of packet or store/queuing them),

c. third means, for one of storing (see FIG. 2-4, 6, port module 20(N)-21(N), interport packet switch 22) for storing/queuing) or discarding the cell in the memory (see FIG. 2-3, Input port module 20(N) for discarding/dropping) in accordance with the determination made by the second means (see col. 7, line 1 to col. 8, line 14-35), and for reading cells out of the memory and forwarding them (see FIG. 2-4, 6, port module 20(N)/21(N) reads/retrieves and forward the

segmented meta-data from the memory; see col. 5, line 16 to col. 6, line 11, 35-52; see col. 7, line 65 to col. 9, line 30), and

d. fourth means (see FIG. 2, 5; packet meta-data processor 23) for repetitively generating a status of an number of cells stored in the memory during a period immediately preceding generation of a status, wherein the determination made by the second means is a function of the generated status (see FIG. 3-6; status signals to/from processor 23 regarding the buffer status where the packet meta-data are stored/queued; see col. col. 7, line 35-65; col. 8, line 14-35; see col. 9, line 25 to col. 10, line 67).

Schwartz does not explicitly disclose an estimate of an average number of cells. However, determining an estimate of an average number of cells in the queue/memory/buffer for discarding is well known in the art as Random Early Dropping/Discarding (RED) or weighted RED (WRED) according to an average queue depth where the average number of cells are stored. In particular, Epps teaches repetitively generating an estimate of an average number of cells stored in the memory during a period immediately preceding generation of the estimate, wherein the determination made is a function of the generated estimate (see col. 17, line 5-22; see col. 20, line 14-18; see col. 27, line 33-54; see col. 27, line 60 to col. 31, line 60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to estimate an average number of cells for discarding/dropping, as taught by Epps in the system of Schwartz, so that it would avoid congestion; see Epps col. 29, line 12-21.

Regarding Claims 2 and 12, Schwartz discloses b4) making the determination as to whether to discard the cell or to store the cell in the memory; b5) one of storing or discarding the

cell in the memory in accordance with determination as described above in claim 1 and 11. Epps further discloses

b1) fifth means for assigning each cell a discard weight that is a function of the estimate generated by the fourth means (see FIG. 24,25,31; col. 33, line 20-32)

b2) sixth means generating a random number (see col. 29, line 59-67; see col. 32, line 12-24, 39; see col. 39);

b3) seventh means for comparing the cell's assigned discard weight to the random number to produce result data indicting whether the discard weight exceeds a value of the random number (see FIG. 24,25,31; using WRED/RED; see col. 10-25, 26-40);

b4) eighth means for making the determination as to whether to discard the cell or to store the cell in the memory in response to the result data (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67),

b5) one of storing or discarding the cell in the memory in accordance with determination at step b4 (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to assign/generate/compare and determine an average number of cells for discarding/dropping, as taught by Epps in the system of Schwartz, so that it would avoid congestion; see Epps col. 29, line 12-21.

Regarding Claims 7 and 17, Epps discloses a1) means for multiplying a previously generated estimate of an average number of cells stored in the memory by a value of a parameter X between 0 and 1 to produce a first value (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67),

a2) means for multiplying a number of cells currently stored in the memory by a quantity (1-X) to produce a second value (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67), and

a3) means for generating a next estimate of the average number of cells stored in the memory, as a sum of the first and second value (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67);

a4) iteratively repeating steps a1 through a3 (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to multiply and generate/compare average number of cells, as taught by Epps in the system of Schwartz, so that it would avoid congestion; see Epps col. 29, line 12-21.

Regarding Claim 10, the combined system of Schwartz and Epps discloses wherein the estimated of the average number of cells stored in the memory as described above in claim 1. Schwartz discloses repetitively generating a status whenever there is a change in a number of cell currently stored in the memory (see FIG. 3-6; status signals to/from processor 23 regarding the buffer status where the packet meta-data are stored/queued;; see col. col. 7, line 35-65; col. 8, line 14-35; see col. 9, line 25 to col. 10, line 67). Epps further discloses estimated at step whenever there is a change in a number of cell currently stored in the memory (see FIG. 24, 25; see col. 28, line 61-65; see col. 29, line 44-52; see col. 33-41; see col. 30, line 15-39; see col. 31, line 1-38; see col. 32, line 35-55).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide estimate an average number of cells for discarding/dropping,

as taught by Epps in the system of Schwartz, so that it would avoid congestion; see Epps col. 29, line 12-21.

Allowable Subject Matter

4. **Claims 3-6,9,13-16** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. **Claims 8 and 18** are objected to in accordance with the objection in paragraph 1 and as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 3/28/2006 have been fully considered but they are not persuasive.

Regarding claims 1,2, 7, 10-12 and 17, the applicant argued that, "...neither Schwartz nor Epps teaches the step of "storing...the cell in memory", "third means of claim 1 for "storing...the cell in the memory", "the step of making a determination... as to whether to discard the cells", or the "second means", "step d of claim 1" or the "forth means of claim 1", "step b and d and claim 1, or "third means or fourth means"..." in page 9-11; page 12, paragraph 1.

In response to applicant's argument, the examiner respectfully disagrees with the above argument.

Schwartz discloses an apparatus for receiving, storing and then forwarding data in a plurality of incoming packets (see FIG. 2, Switching node 11(n); see col. 5, line 1-55), the apparatus comprising:

a memory (**see FIG. 3, 6; packet memory 31 and 51 of port module and storing means of interport packet switch 22; see col. 3, line 25-40; see col. 6, line 53 to col. 7, line 4**);

a. first means (**see FIG. 2-3, Input port module 20(N)**) for receiving each incoming packet and for generating a cell sequence corresponding to the incoming packet, wherein each cell of the cell sequence packet contains a separate portion of the data included in the incoming packet (or a uniform size) (**see col. 5, line 66 to col. 6, line 10; see col. 10, line 41-65; Input port module divides incoming packet into a series/sequence of equal/uniform segments/cells (i.e. packet meta-data)**);

b. second means (**see FIG. 2, 5; packet meta-data processor 23**) for making a determination with respect to at least one cell of each generated cell sequence to whether to discard the cell or to store the cell the memory (**see col. 7, line 35-65; col. 8, line 14-35; processor determines whether to discard/drop the segments of packet or store/queuing them**),

c. third means, for one of storing (**see FIG. 2-4, 6, port module 20(N)-21(N), interport packet switch 22) for storing/queuing**) or discarding the cell in the memory (**see FIG. 2-3, Input port module 20(N) for discarding/dropping**) in accordance with the determination made by the second means (**see col. 7, line 1 to col. 8, line 14-35**), and for reading cells out of the memory and forwarding them (**see FIG. 2-4, 6, port module 20(N)/21(N) reads/retrieves and**

forward the segmented meta-data from the memory; see col. 5, line 16 to col. 6, line 11, 35-52; see col. 7, line 65 to col. 9, line 30), and

d. fourth means (**see FIG. 2, 5; packet meta-data processor 23**) for repetitively generating a status of an number of cells stored in the memory during a period immediately preceding generation of a status, wherein the determination made by the second means is a function of the generated status (**see FIG. 3-6; status signals to/from processor 23 regarding the buffer status where the packet meta-data are stored/queued; see col. col. 7, line 35-65; col. 8, line 14-35; see col. 9, line 25 to col. 10, line 67**).

Determining an estimate of an average number of cells in the queue/memory/buffer for discarding is well known in the art as Random Early Dropping/Discarding (RED) or weighted RED (WRED) according to an average queue depth where the average number of cells are stored. In particular, Epps teaches repetitively generating an estimate of an average number of cells stored in the memory during a period immediately preceding generation of the estimate, wherein the determination made is a function of the generated estimate (**see col. 17, line 5-22; see col. 20, line 14-18; see col. 27, line 33-54; see col. 27, line 60 to col. 31, line 60**).

Regarding claim 1 and 11, the applicant argued that, "...claim 1...note that the memory stores individual cells, not packets...Schwartz receives each incoming packet and stores the entire packet in a memory without first breaking the packet into cells (or segments) as recited in claim 1 and 11...claim 1 and 11 recites...determination as to whether to discard incoming packet is made on cell-by-cell basis after converting a packet into a sequence of cells...Schwartz determines whether to discard the packet on a packet-by-packet basis and make the decision only

after storing the packet in the memory and before breaking the packet into cells...Epps does not teach to convert packets into cell sequence..." in page 9, paragraph 3-4; page 10, paragraph 3.

In response to applicant's argument, the examiner respectfully disagrees with the above argument. As recited above Schwartz discloses segmenting incoming packet into equal/uniform segments/cells (i.e. packet meta-data). Thus, it is clear the examiner is asserting Schwartz's "**segmented equal/uniform segment of packet data**" as applicant's "**cell**" since they both are formed by segmenting the packet equally/uniformly.

Moreover, examiner asserts "a memory" as a combined system of "packet memory 31 and 51 of port module and storing means of interport packet switch 22". As stated above, Schwartz discloses that the segmented data (see FIG. 3, PKT/segment GENR 34) are stored/buffered/queued in the packet memory 51 (see FIG. 6; see col. 14, line 45-50) and/or "storing means of switch 22" such as Output FIFO 44(n) (see FIG. 5) after determining to store the segmented packet data (i.e. cell); see col. 2, line 21-26; see col. 8, line 45-47; see col. 11, line 60-64. Schwartz discloses determining whether to discard incoming packet is made on each segmented packet data (i.e. cell-by-cell) after converting a packet into a sequence of segmented data (see col. 7, line 35-65; col. 8, line 14-35; also see FIG. 5, packet pass/drop CRCT 42n; see col. 11, line 65-67), then store/buffer/queue the segment packet data in packet memory 51 and/or output FIFO 44n. Epps does not require disclosing covert packets into cell sequence since the limitation has been addressed by Schwartz. Thus, it is clear that first determining each segmented packet data/cell whether to store or discard them, then after either store or discard segmented packet data/cell.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., **cell-by-cell basis**) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Even if this limitation is claimed, Schwartz discloses determining upon each segmented packet data (which examiner asserts as cell) whether to discard or forward for storage/buffering/queuing.

Regarding claim 1 and 11, the applicant argued that, "...applicant's input port memory, each storage location stores a cell, since all cells are of uniform size, none of the storage capacity of any storage is wasted storing cells that are to be forward..." in page 10, paragraph 2.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., **applicant's input port memory, each storage location stores a cell, since all cells are of uniform size, none of the storage capacity of any storage is wasted storing cells that are to be forward**) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Even if this limitation is claimed, Schwartz discloses determining upon each segmented packet data (which examiner asserts as cell) whether to discard or forward for storage/buffering/queuing.

Regarding claim 2 and 12, the applicant argued that, "...Epps and Schwartz...neither reference teaches additional limitation of claim 2...claim 12..." in page 11, paragraph 3.

In response to applicant's argument, the examiner respectfully disagrees with the above argument. **Schwartz** discloses b4) making the determination as to whether to discard the cell or to store the cell in the memory; b5) one of storing or discarding the cell in the memory in accordance with determination as described above in claim 1 and 11. **Epps** further discloses

b1) fifth means for assigning each cell a discard weight that is a function of the estimate generated by the fourth means (see FIG. 24,25,31; col. 33, line 20-32)

b2) sixth means generating a random number (see col. 29, line 59-67; see col. 32, line 12-24, 39; see col. 39);

b3) seventh means for comparing the cell's assigned discard weight to the random number to produce result data indicting whether the discard weight exceeds a value of the random number (see.FIG. 24,25,31; using WRED/RED; see col. 10-25, 26-40);

b4) eighth means for making the determination as to whether to discard the cell or to store the cell in the memory in response to the result data (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67),

b5) one of storing or discarding the cell in the memory in accordance with determination at step b4 (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67).

Thus, the combined system of Schwartz and Epps clearly discloses the argued claim invention.

Regarding claim 10, the applicant argued that, "...Epps and Schwartz...neither reference teaches additional limitation of claim 10..." in page 11, paragraph 4.

In response to applicant's argument, the examiner respectfully disagrees with the above argument. **Schwartz** discloses repetitively generating a status whenever there is a change

in a number of cell currently stored in the memory (see FIG. 3-6; status signals to/from processor 23 regarding the buffer status where the packet meta-data are stored/queued; see col. col. 7, line 35-65; col. 8, line 14-35; see col. 9, line 25 to col. 10, line 67). **Epps** further discloses estimated at step whenever there is a change in a number of cell currently stored in the memory (see FIG. 24, 25; see col. 28, line 61-65; see col. 29, line 44-52; see col. 33-41; see col. 30, line 15-39; see col. 31, line 1-38; see col. 32, line 35-55).

Thus, the combined system of Schwartz and Epps clearly discloses the argued claim invention.

Regarding claims 7 and 17, the applicant argued that, "...Epps and Schwartz...neither reference teaches additional limitation of claim 7 and 17" in page 12, paragraph 1.

In response to applicant's argument, the examiner respectfully disagrees with the above argument. Epps discloses a1) means for multiplying a previously generated estimate of an average number of cells stored in the memory by a value of a parameter X between 0 and 1 to produce a first value (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67),

a2) means for multiplying a number of cells currently stored in the memory by a quantity (1-X) to produce a second value (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67), and

a3) means for generating a next estimate of the average number of cells stored in the memory, as a sum of the first and second value (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67);

a4) iteratively repeating steps a1 through a3 (see FIG. 24,25,31; using WRED/RED; see col. 31, line 8-20; see col. 32, line 4-67).

Thus, the combined system of Schwartz and Epps clearly discloses the argued claim invention.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N. Moore whose telephone number is 571-272-3085. The examiner can normally be reached on 9:00 AM- 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 571-272-7629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM
4-26-06

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